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Arora et al.

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(54) **SHARING EXECUTION STATES AMONG STORAGE NODES DURING TESTING OF STATEFUL SOFTWARE**

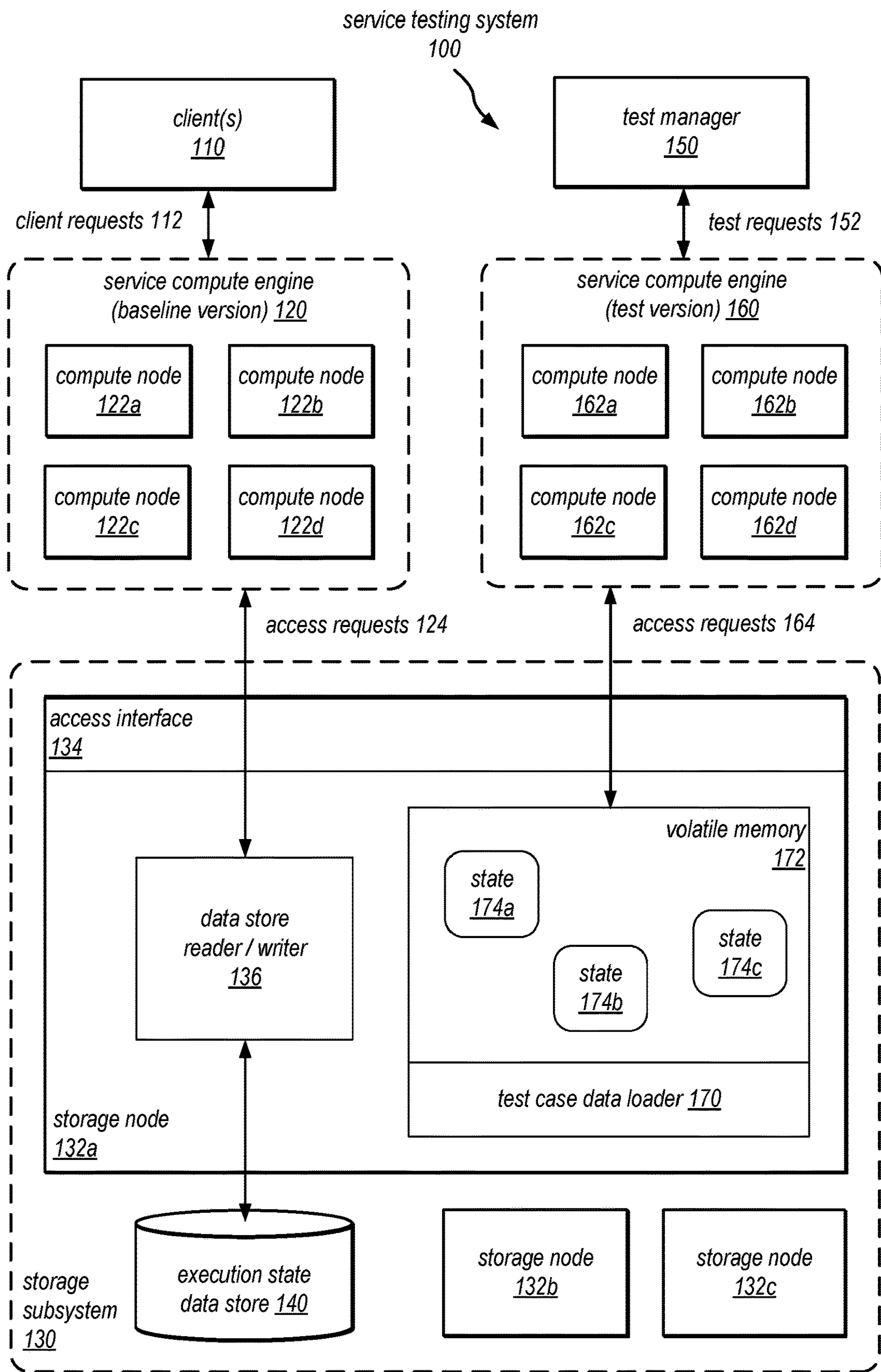
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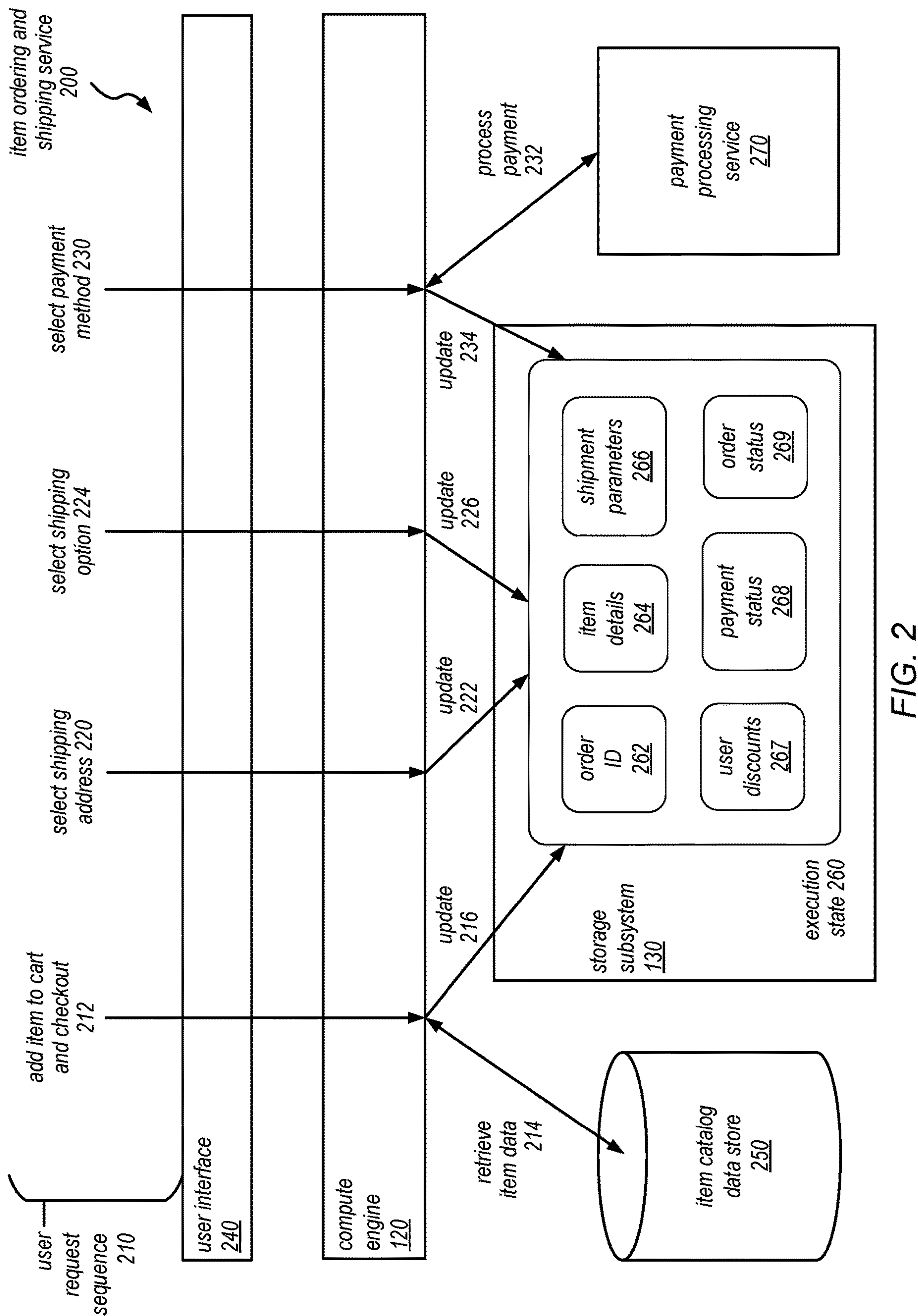
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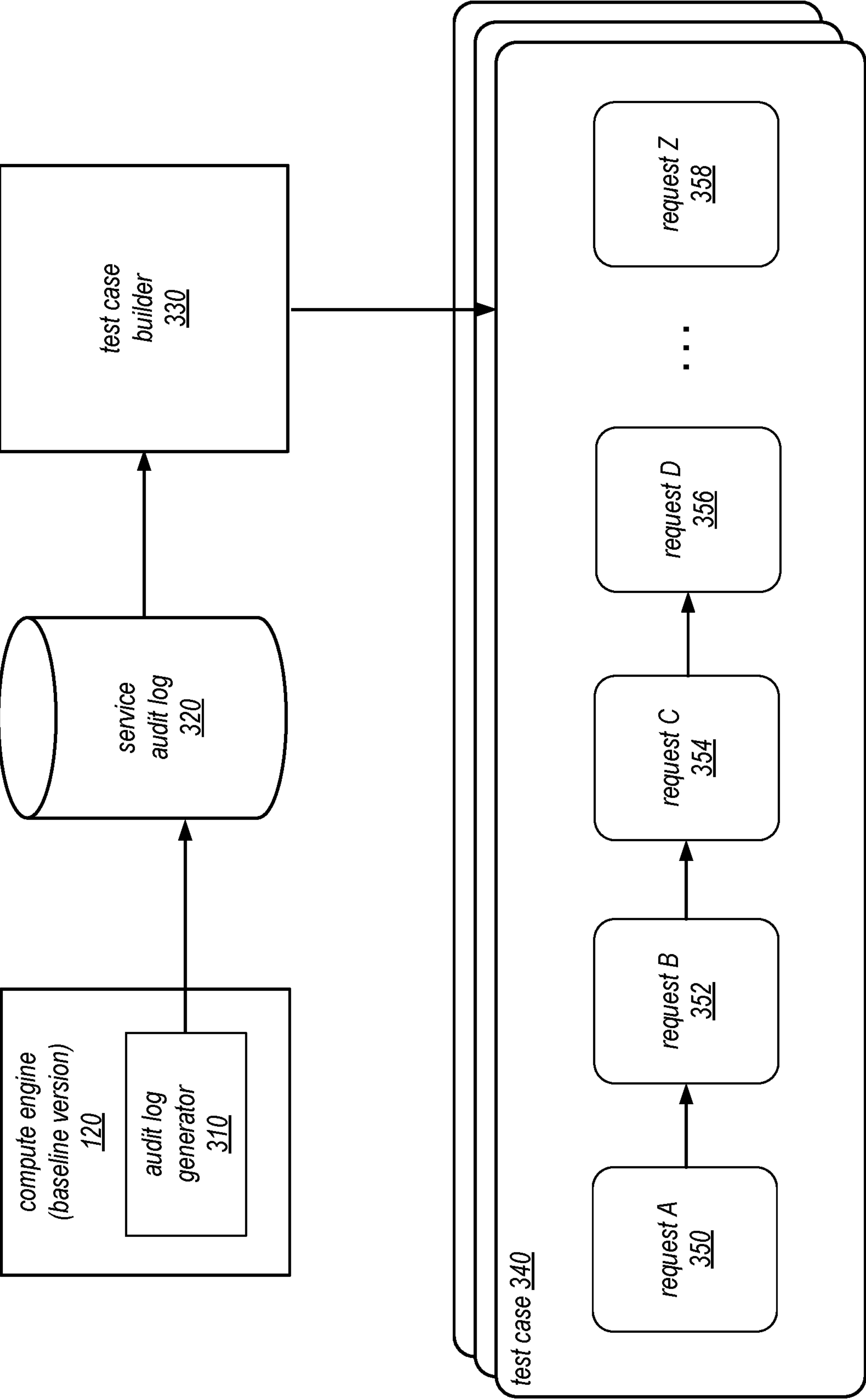
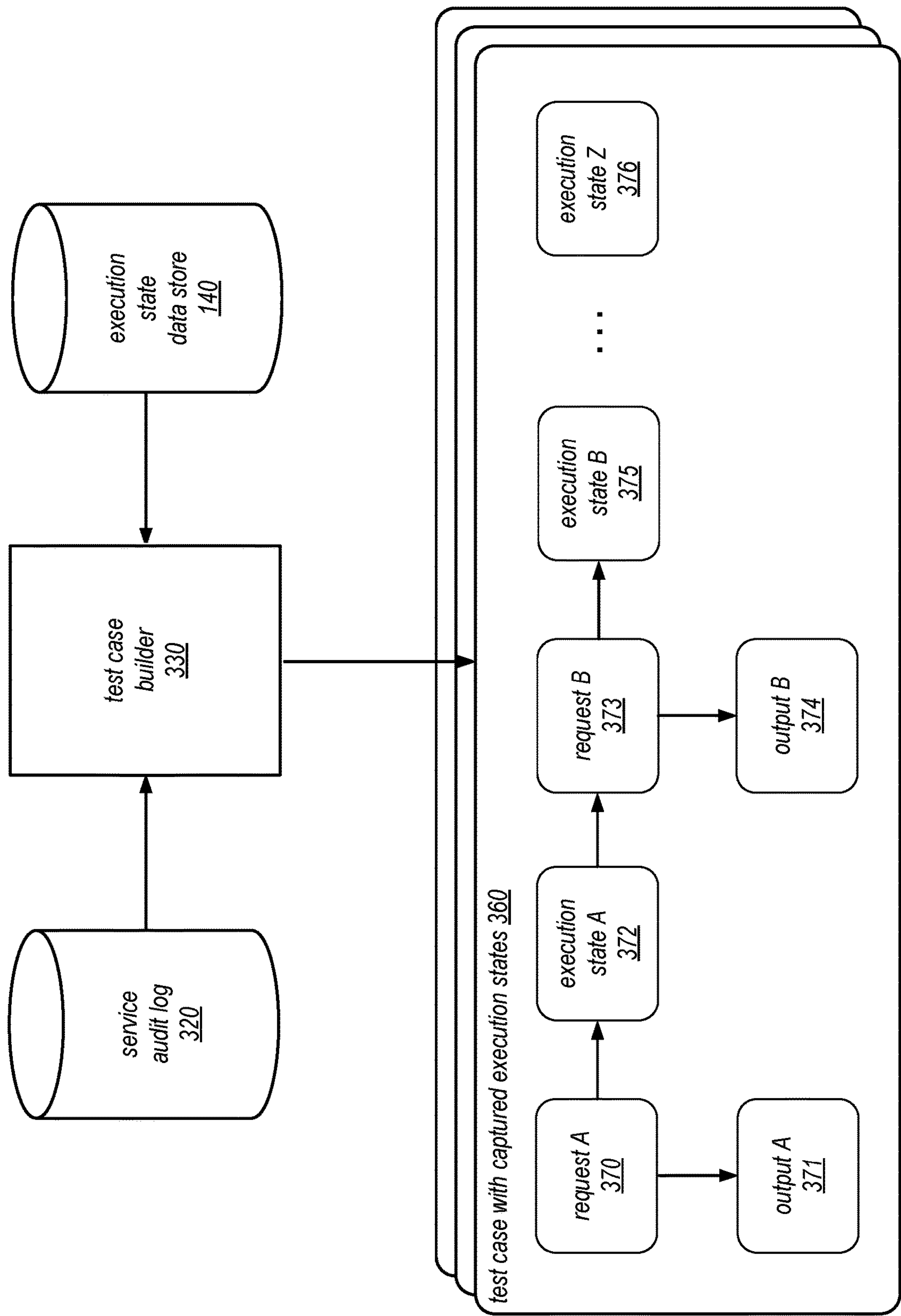
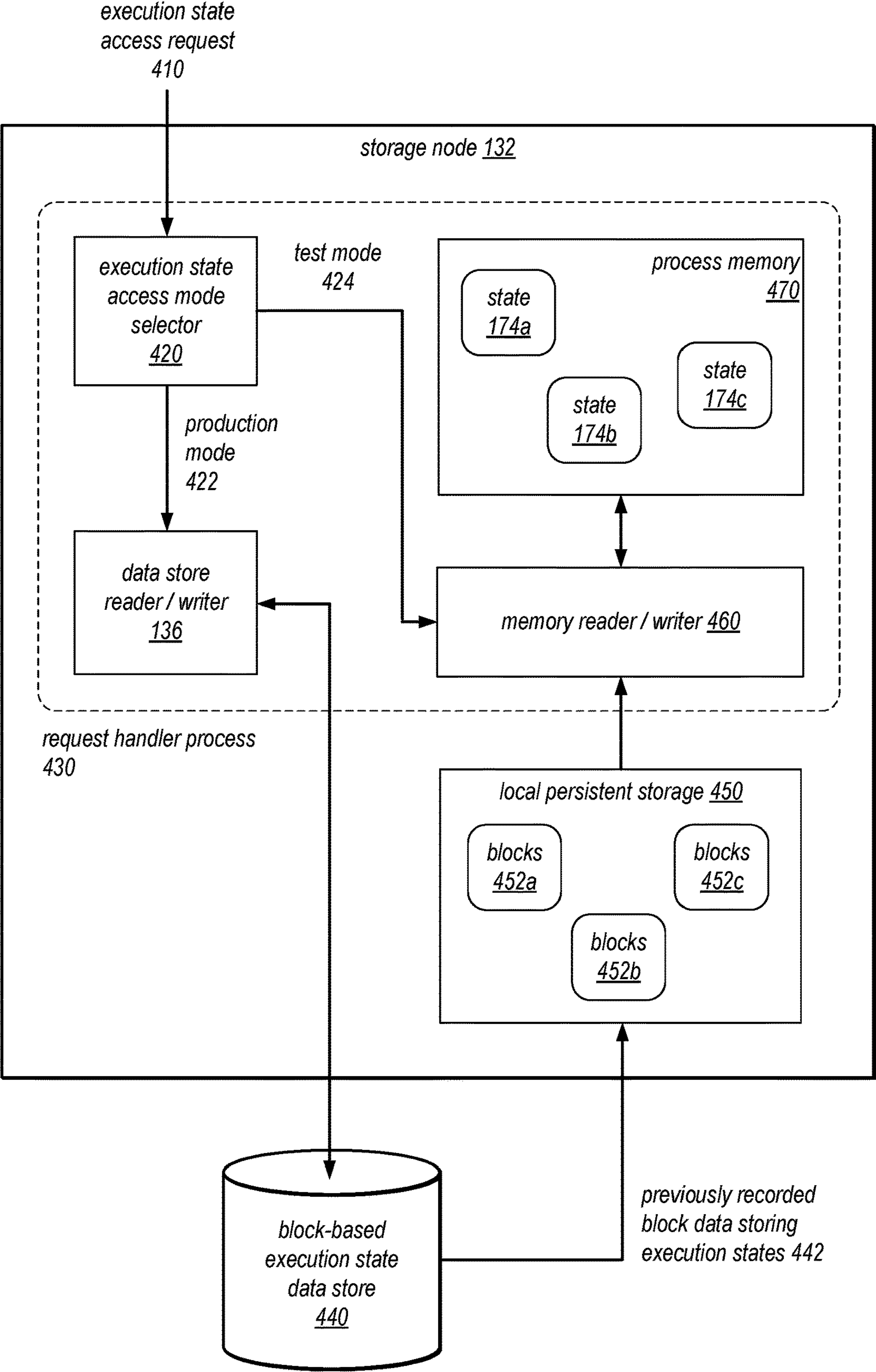
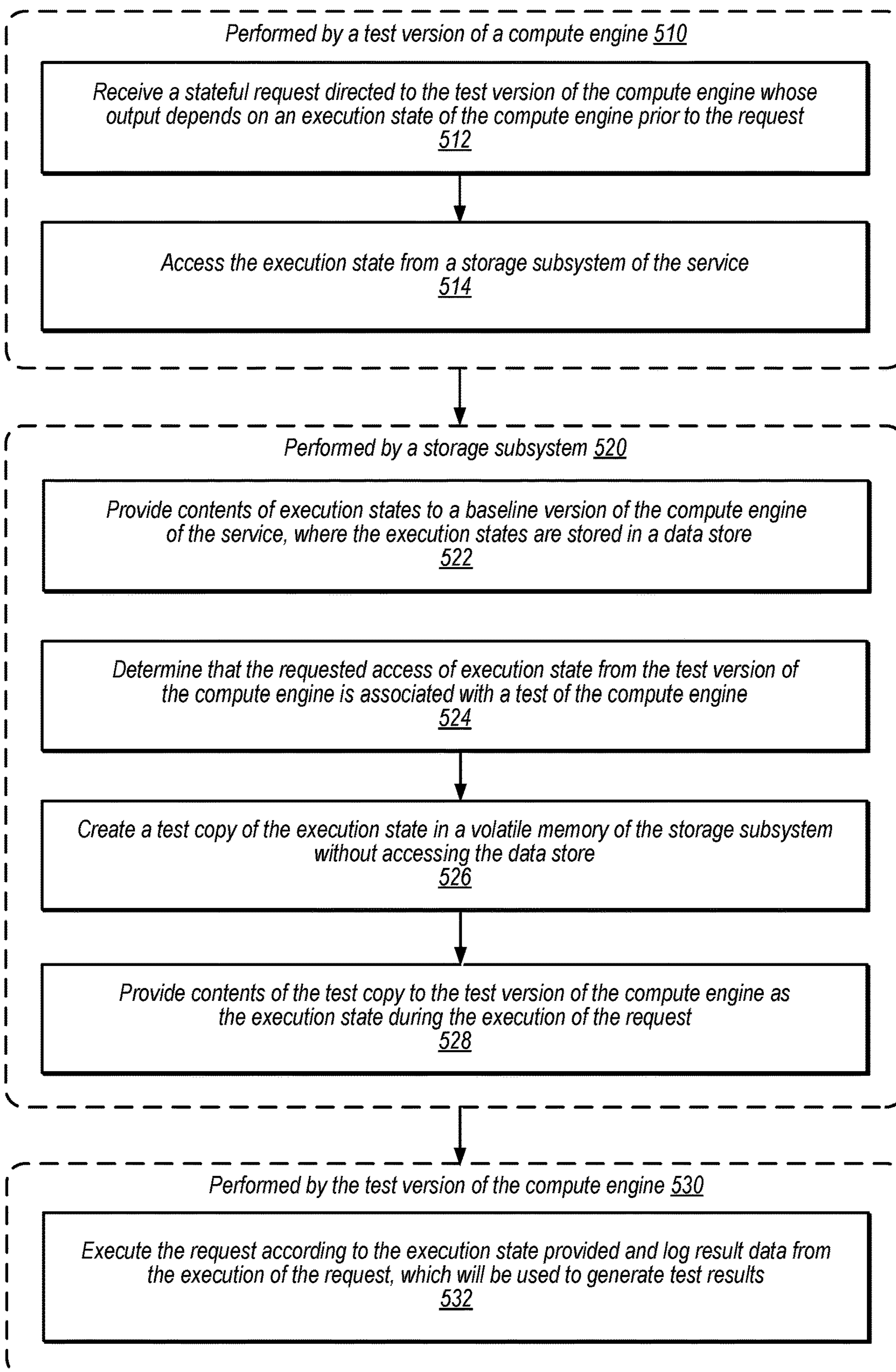
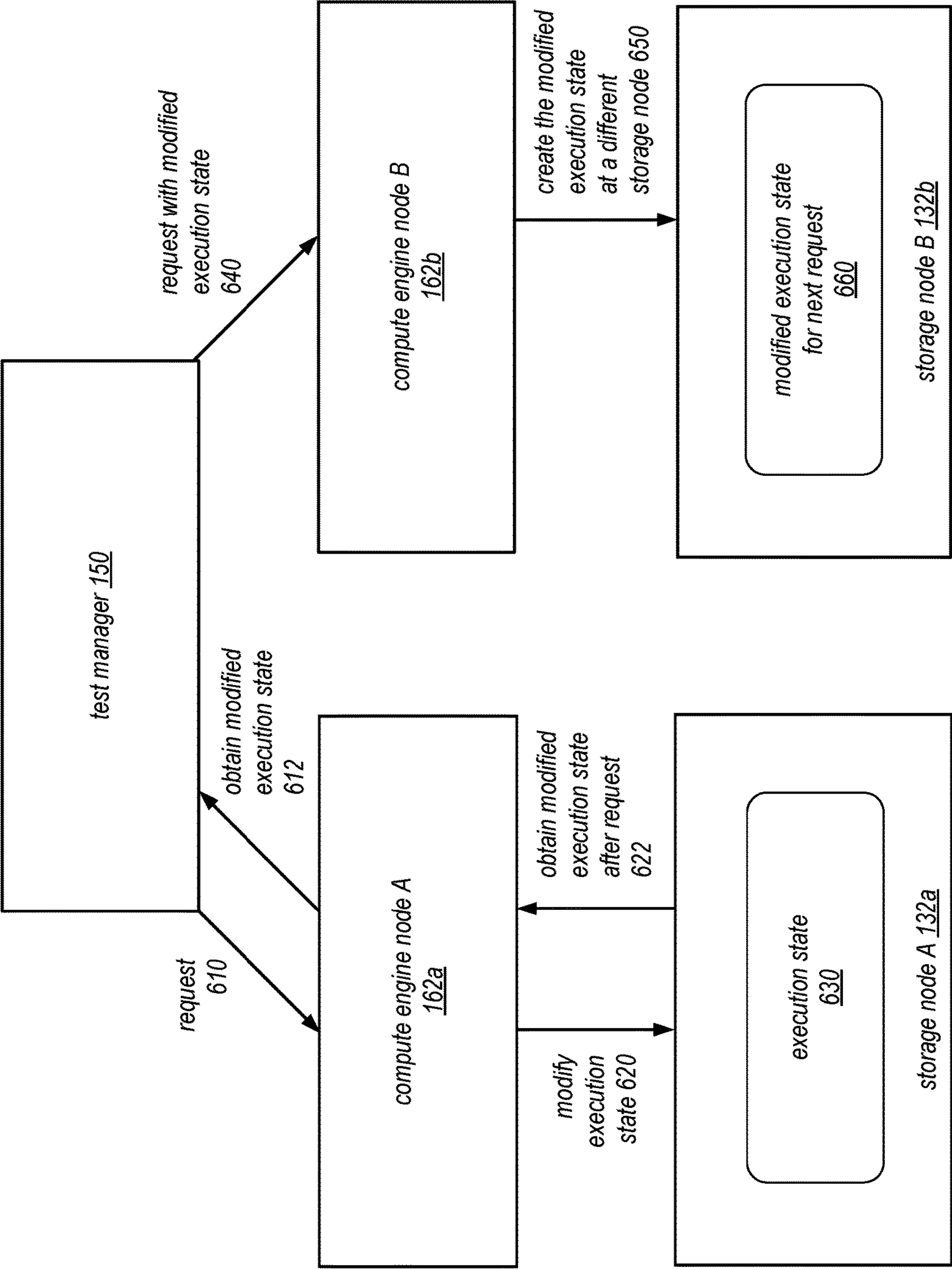


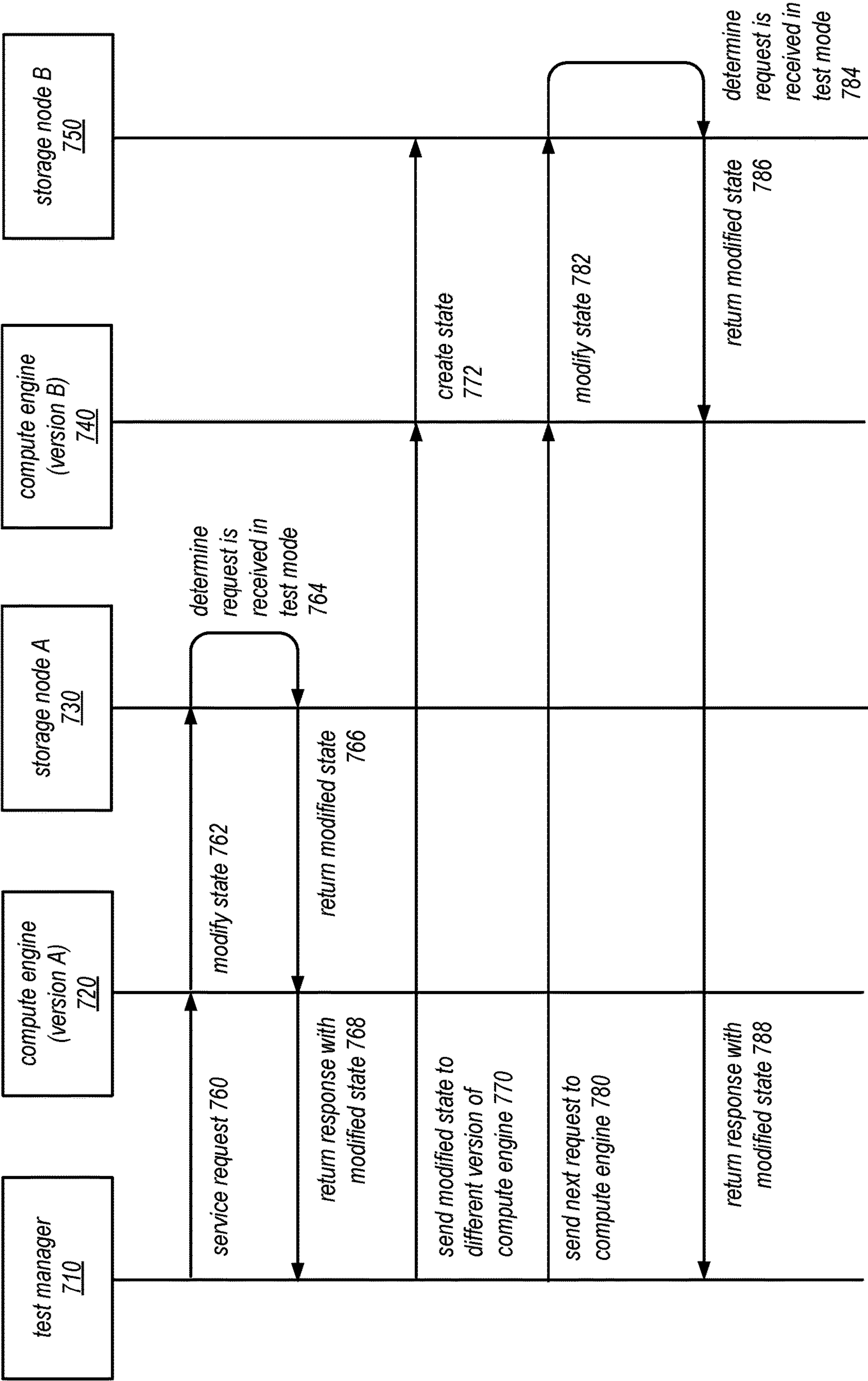
FIG. 3A

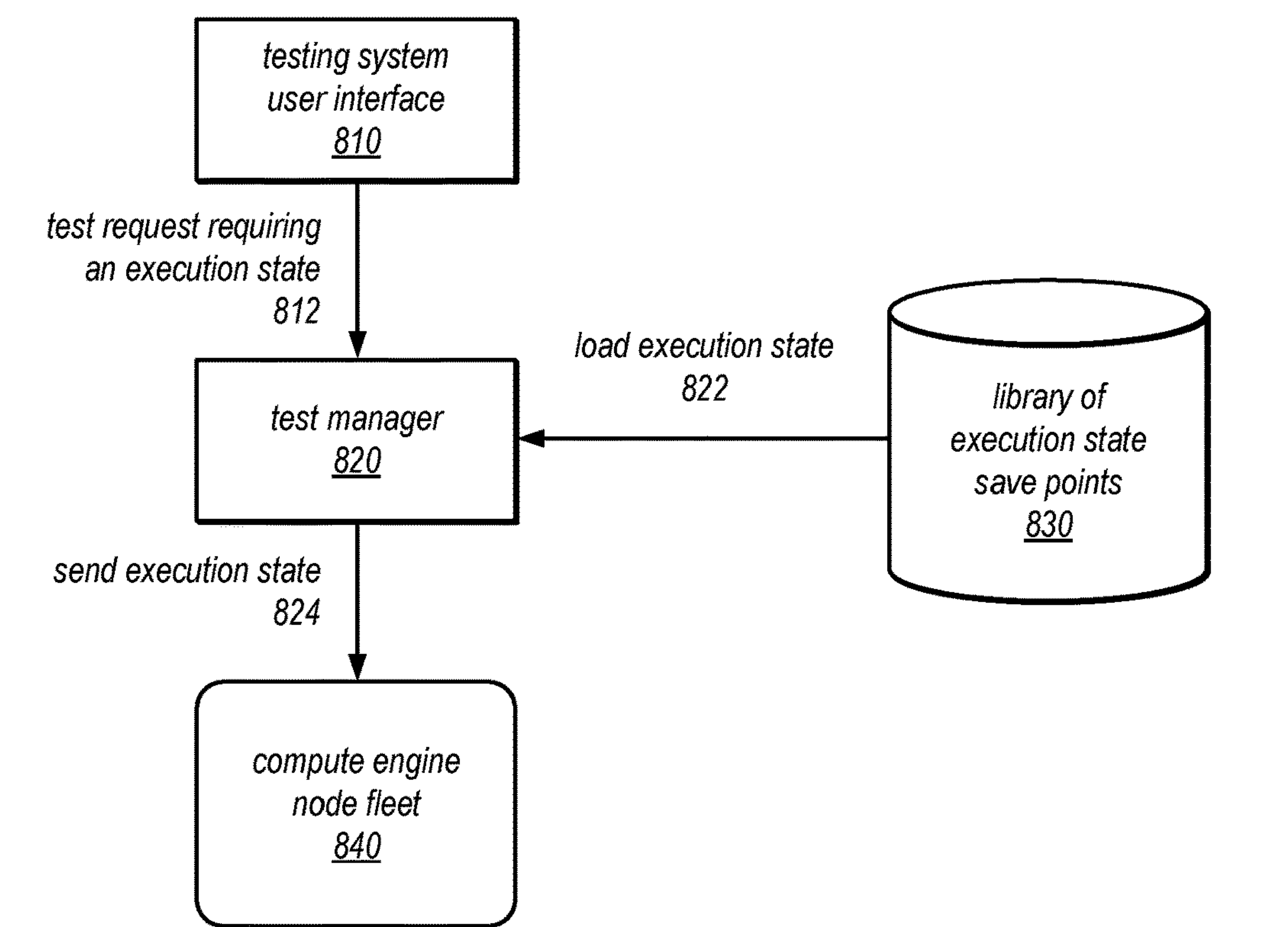


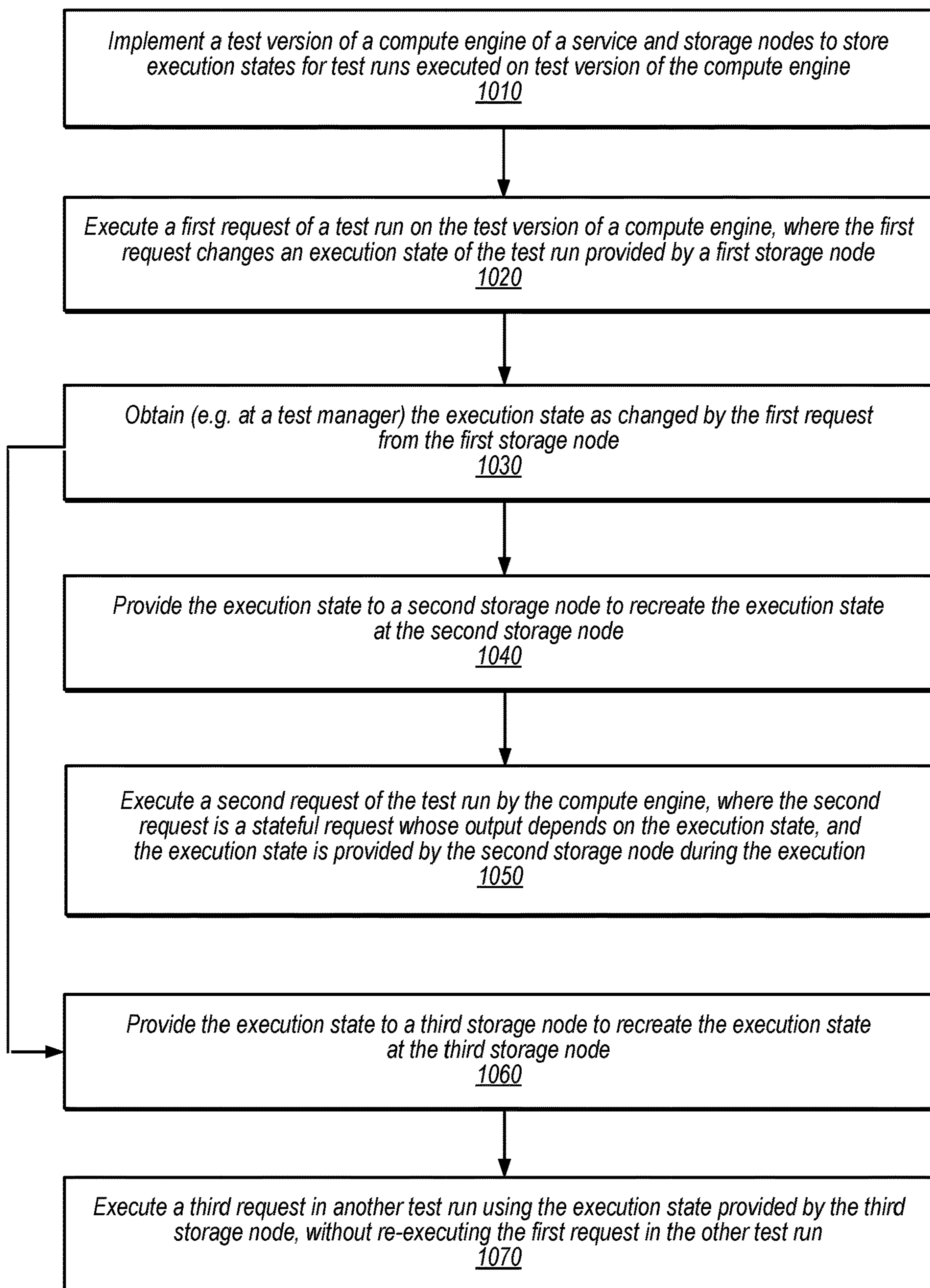


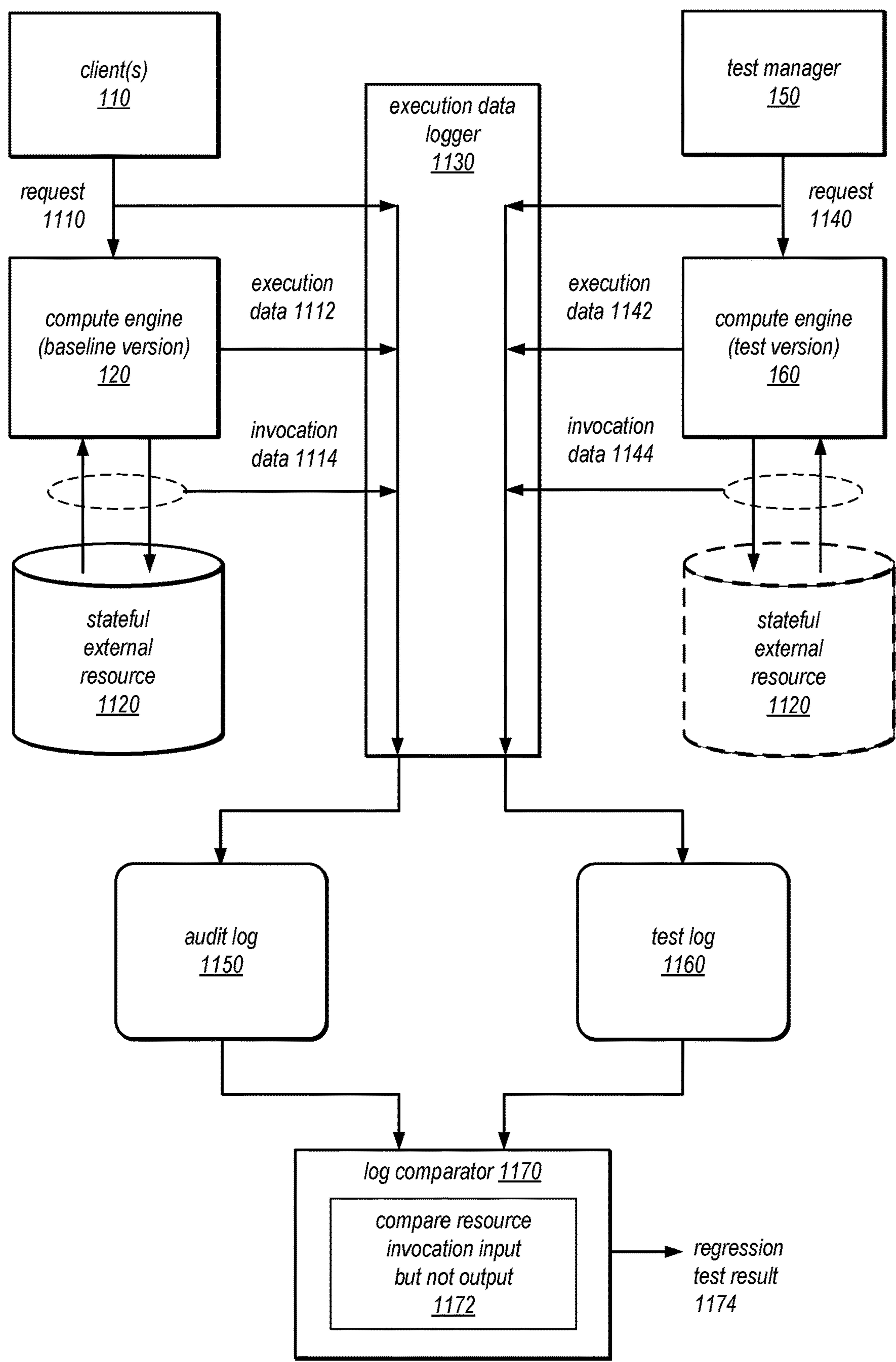


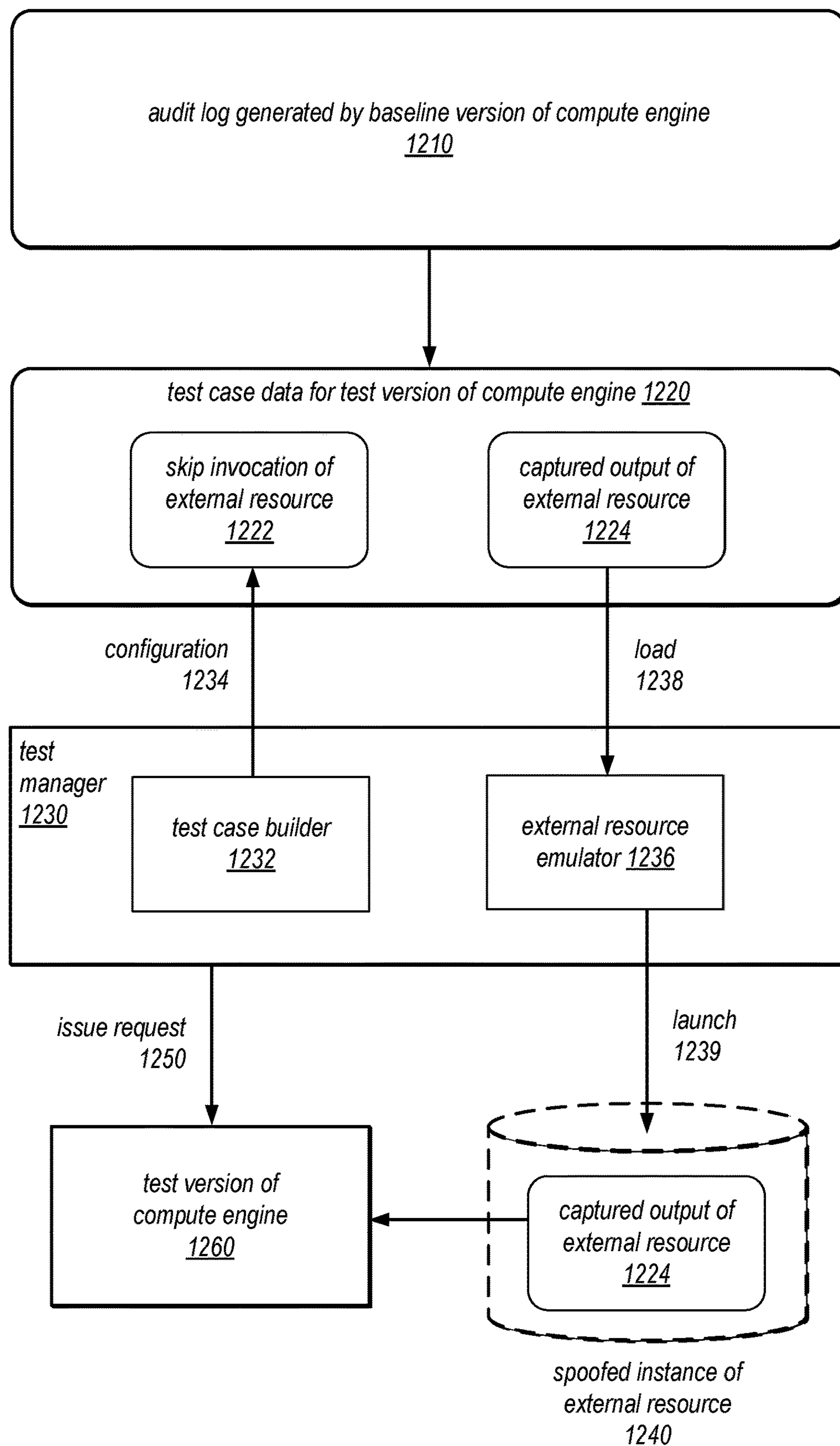


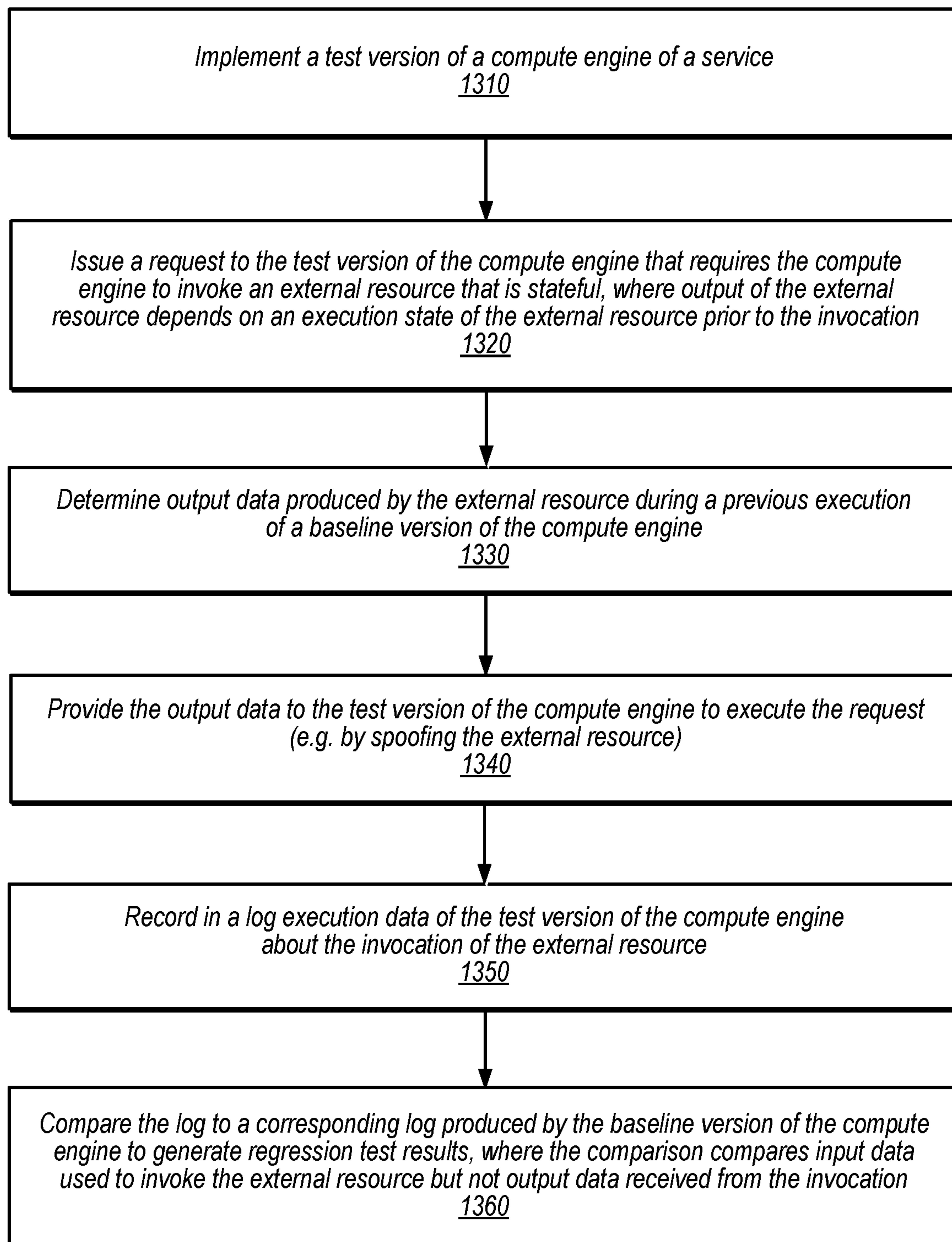


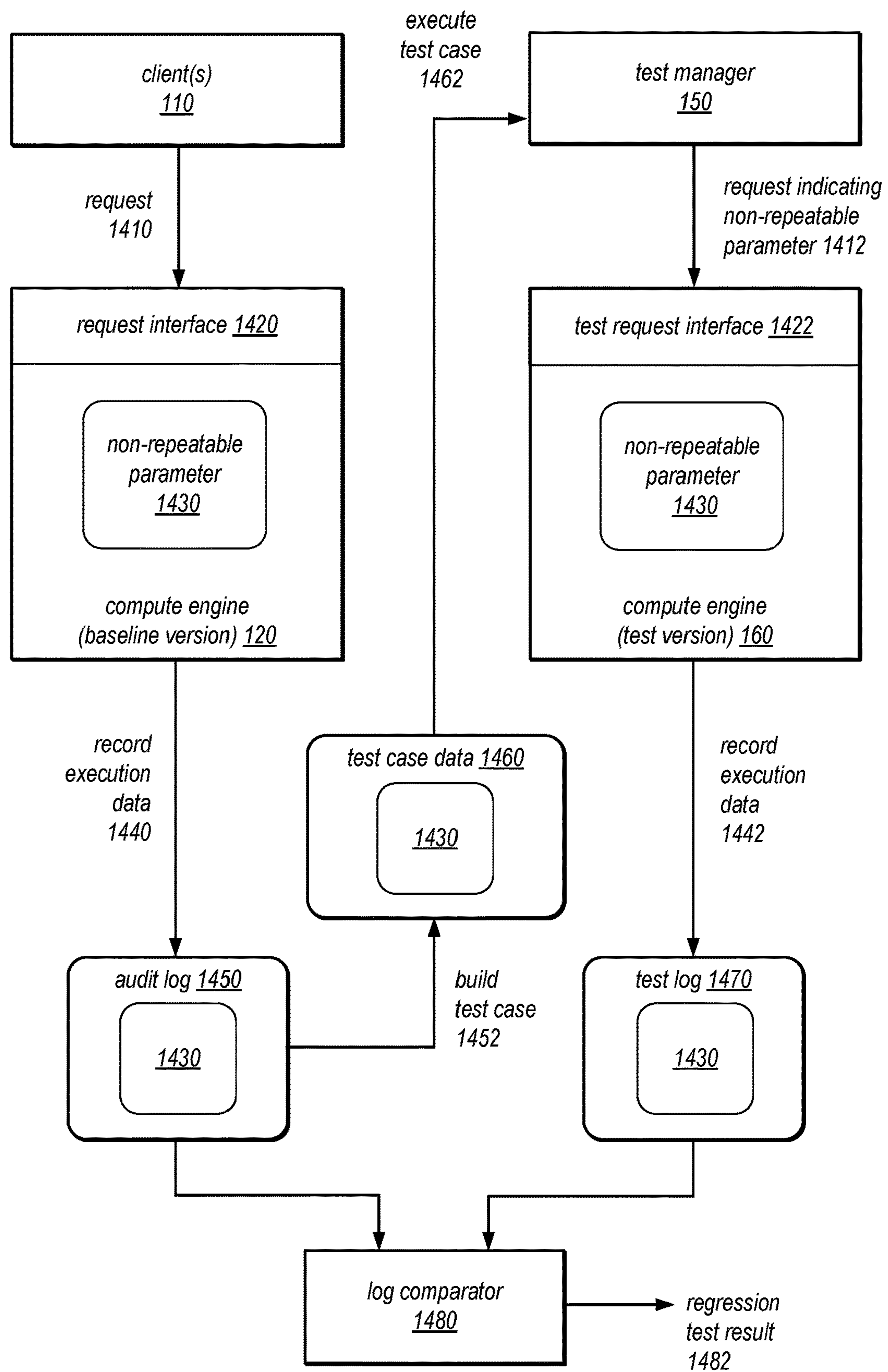


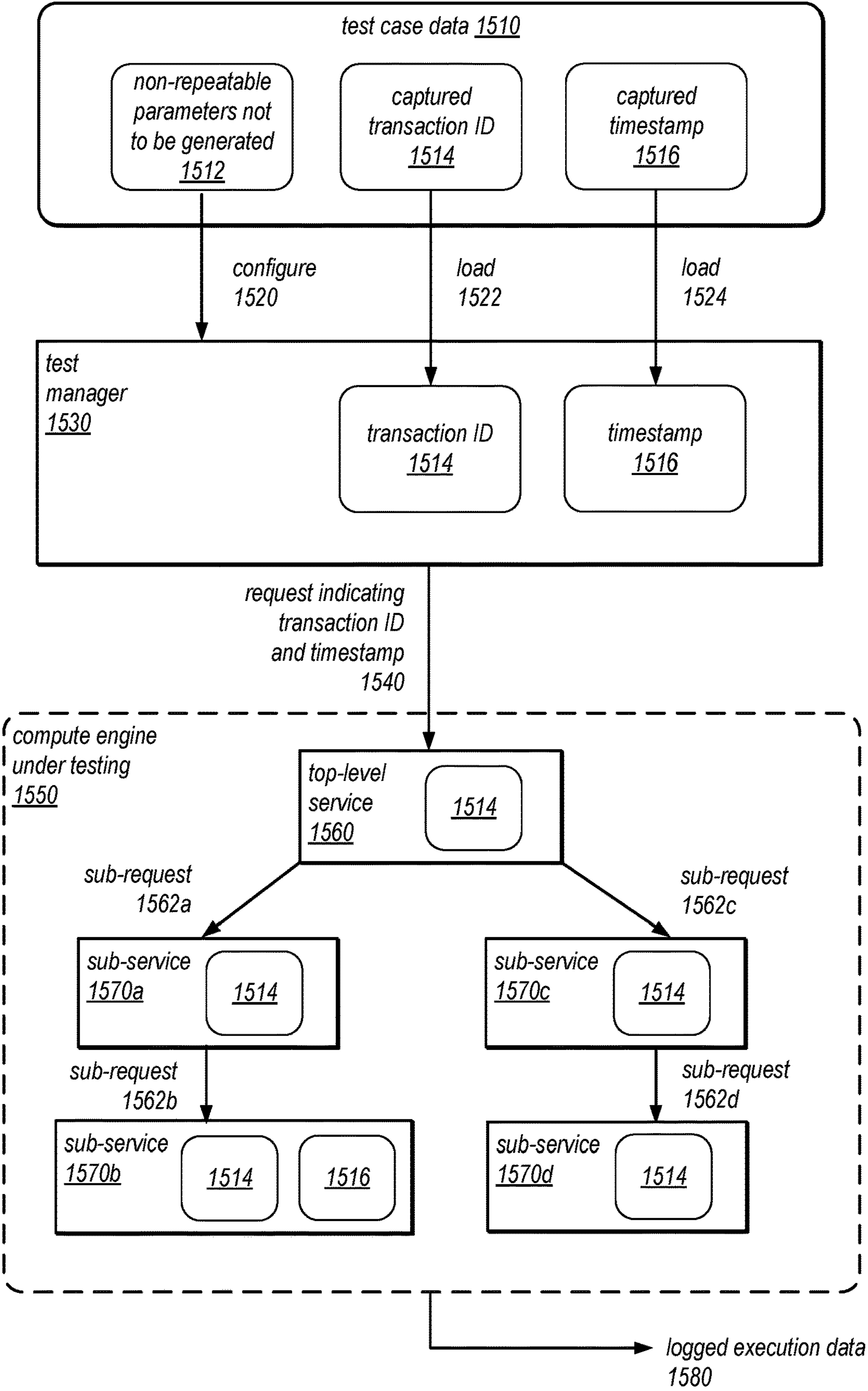


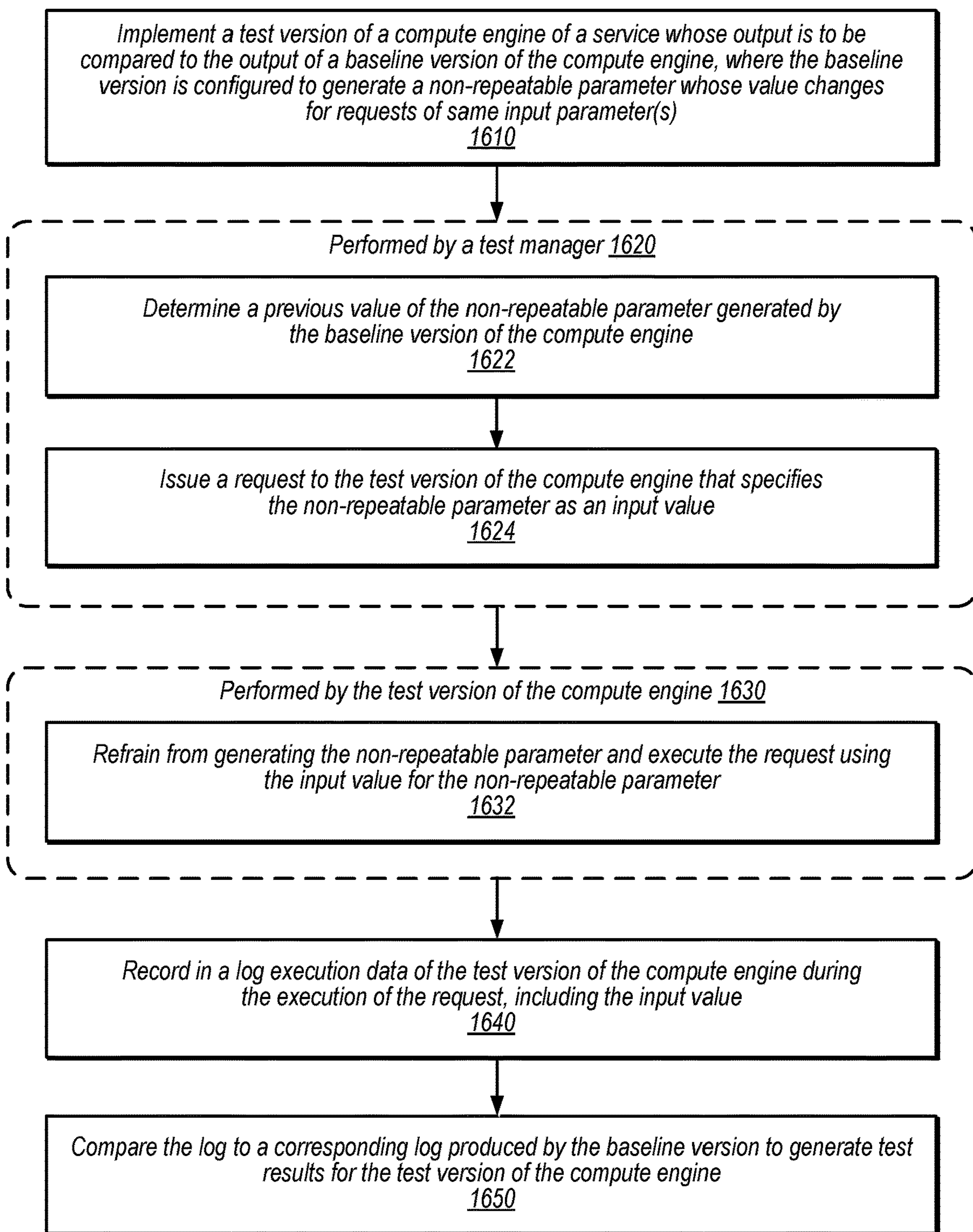


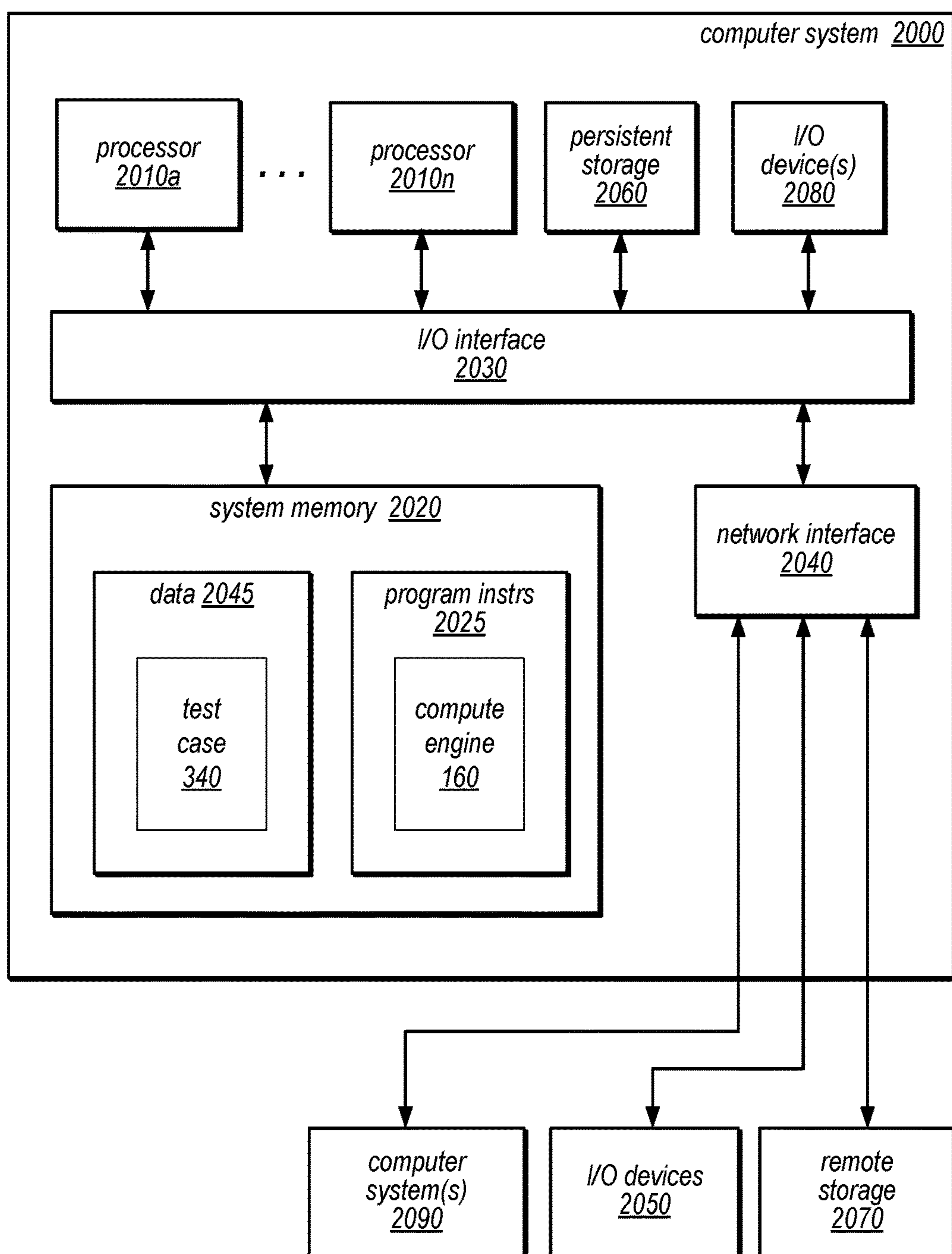












SHARING EXECUTION STATES AMONG STORAGE NODES DURING TESTING OF STATEFUL SOFTWARE

BACKGROUND

A cloud-based service provider provides computing resources to clients that the service provider manages in its service provider network. The service provider manages the operation of the computing resources to allow the resources to be efficiently and securely shared by multiple customers. Cloud-based services may be provided using groups of virtual compute and storage nodes. Such architectures allow the service to be easily scaled to accommodate very large customers, and automatically adjust its resources based on changing demand levels. These services are

requests on a service compute engine whose output depends on the service's execution state prior to the requests.

Replay testing is an important tool used to verify many types of software, including software that implement cloud-based services. For example, replay testing can be used to perform regression testing of applications, where actual requests submitted to a production version of the application are captured and then replayed against a test version of the application. The results or responses from the two executions are compared to determine if the test version of the application has regressed in undesired ways.

While it is relatively straightforward to perform replay testing on stateless services that always return the same response for

